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rusty straw should be accomplished at latest by about the first of April, at which date the resting spores begin to germinate, and the sporidia then propagate the disease.

Varieties: Of the ability of different varieties to resist the action of rust little can be said. Certain it is that there is a slight prejudice in favor of the red wheats, for which, perhaps, there is some ground. The white wheats, on the other hand, produce a softer and more succulent straw, which is more favorable to the growth of the parasite. The large Station experiment field with its numerous plots of varieties, under essentially the same conditions, gave good chance for the consideration of this question. While it can not be said that any variety is rust proof, yet it is quite evident that a difference exists. There are some few upon which it seems exceedingly difficult for the disease to gain a working hold. Among such were noted three varieties: Fulcaster, Egyptian and Dietz Longberry. These are all what would be termed hardy, stiff-strawed wheats, having smooth, fibrous leaves. The Dietz Longberry, though it was in a long strip of only one seeder-width between two varieties which by the 10th of June were very badly rusted, yet remained comparatively free from rust until June 20th, when it was too far advanced to be greatly injured. The Velvet Chaff of all the varieties noted is the one most susceptible to the attack and destructive work of the parasite.

Drainage: Though it can not be said that wheat rust is always less effective upon well drained soil, yet usually such is

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development. In dry seasons, when high land wheats are free from the pest or not perceptibly injured by it, it will be found that low wet spots furnish the means for its continued development—the evaporation from the saturated soil being sufficient to furnish the moisture upon the leaves essential for the germination of the spores.

“*Soil:* There are yet cases in the muling of wheat for which no theory regarding differences in location, variety, drainage or humidity of the atmosphere can wholly account. One such element in the problem is perhaps to be looked for in the proportion of chemical constituents in the soil causing differences in the quality of the plant growth.

“It is a matter of common note that soil rich in organic plant foods, such as low lying lands, are quite liable to produce rusted crops—and in England, where great quantities of nitrogenous fertilizers are used, much has been said as to the liability of the crop to rust upon fields to which such manures have been applied. Such observations go to confirm the common belief that soils excessively rich in nitrogen, either natural or applied, produce wheat easily attacked by rust. Dr. Voelcker, after a course of carefully conducted soil analyses bearing directly upon this subject, writes: “I have a very strong conviction that an excess of nitrogenous food in the soil renders wheat liable to the attacks of mildew (rust). These ideas also accord with the belief among many of our farmers that wheat after clover is very easily affected—the clover possessing the well-known ability of so placing the nitrogen of the soil that it is more available to the wheat crop.”

A preliminary test was made to determine whether the wheat plants most susceptible to rust possess a higher proportion of nitrogen in the dry matter than those less easily diseased. Four similar samples of three different wheats, grown on the same soil and under similar conditions, were analyzed and the per cent. of nitrogen ascertained. Prof. Bolley, who has charge of the investigation, says that though the test was too limited to base argument upon, yet the results obtained bear out the theory. He adds, in conclusion:

“The opinion regarding the action of nitrogen upon the wheat is based upon the common observation that the crop grown upon soils bearing an excess of nitrogen rusts easily, and upon the known effect of that element upon the ordinary development of a plant. By an excess is here not meant as found by a comparison of the percentage in different soils, but as determined by the proportion of nitrogen as compared with the quantity of the serviceable mineral elements of a particular soil. The general effect of a disproportion in favor of the nitrogenous element is to produce an unnecessary luxuriance of straw. That the growth is heavy and of a dark green color does not argue a healthy, hardy plant. Indeed, such growths seldom fill well, even though they remain free from disease. Besides the fact that such straw is weak and liable to kink and fall, the tissues are soft and succulent and less able to oppose the entrance and disorganization of their structure by the parasite. It seems not unlikely that the mere presence of a greater proportion of nitrogenous matter within the plant tends to a more profuse development of the fungus. In soils bearing a high percentage of available nitrogen the ripening of the grain is retarded, so that in the case of cold, wet weather just at the time when the grain should be rapidly filling, the evils are greatly enhanced by the parasite being allowed time to complete its development. In such cases a liberal application of phosphoric acid, a fertilizer which in point of time greatly facilitates the ripening of wheat, would be highly beneficial.”

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Clinton County farmers have grown tired of “putting up” for hedges which are no good, in their opinion, and talk of organizing a fight against the company whose principal business seems to be to collect assessments.

The Horse.

TROTTERING AT THE STATE FAIR.

The State Agricultural Society have prepared a special speed list for trotters, to be completed for on Wednesday and Thursday of State Fair week. On Wednesday the 2:40 class will be trotted for. The purse is \$300, divided as follows: 1st, \$150; 2d, \$100; 3d, \$50. On Thursday the three-minute and 2:35 classes will complete. The purses are of the same amount and divided in the same manner as in the 2:40 class. The entries for these purses will close Saturday, August 31, at 11 P. M. Entrance fee, 10 percent of purse; five percent must accompany nominations, addressed to J. C. Sterling, Secretary; balance to be paid at or before 8 P. M., the day previous to starting. Five entries and three starters required in each class. All races will be mile heats, three in five, to harness, and will be conducted under the rules of the American Trotting Association. A horse distancing the field or any part thereof, will receive but one premium. The Society reserves the right to postpone, or declare off, or all or all races on account of bad weather. Messrs. A. J. Dean, Eugene Fifeled and C. N. Young are the committee appointed to take charge of the speed contests.

Shoeing Horses.

In reply to a correspondent the Veterinary editor of the *North British Agriculturist* gives some good advice regarding the treatment of the feet of horses in shoeing. The correspondent asks if the smith should be allowed to pare the frog and sole of a riding horse, and rasp the hoof right up to the coronet. In reply the editor says: "Certainly not. The smith is ignorantly removing important structures which contribute to the strength and soundness of the feet. The soft frog, which is so easily and mercilessly whittled away, renders the horse, especially when unsaddled, apt to slip; it is the natural cushion which minimizes concussion of the more sensitive structures within the foot, and indeed of the whole frame; while, moreover, it prevents wiring in of the heels. When its tough external surfaces are ruthlessly sliced away the deeper-seated parts, exposed to friction and dirt, are more liable to noxious thrush. Under no pretense should the healthy frog be touched with the drawing knife. Had it never been pared it would be tough, smooth and free from the ragged, loose portions which are frequently seen in mismanaged feet. These ragged pieces may be trimmed off with knife or scissors, but the deeper, sound structures must be left untouched. In ordinary sound feet the only part of the sole which requires to be removed by the drawing-knife is the portion on which the shoe has rested, and which, having been protected from wear and tear, requires its superficial growth to be reduced by the knife or rasp. The horn of the rest of the sole should be studiously preserved as the natural protection of the sensitive internal structures. Were it not preserved, there would be fewer bruises, corns, stumbling from treading on a loose stone, and other diseases and accidents resulting from weak feet, and less necessity for leather soles, which at best are a poor substitute for the natural tough waterproof coating which has been pared away. The rasping of the walls of the foot when the shoe has been put on, although, perhaps, scarcely so seriously detrimental as the other vagaries of the smith, senselessly weakens the crust. It removes the stout, external, protecting covering of the foot; the horn that grows down is hence less capable of firmly holding the nails; it is more liable to sandcrack; while the chief portion of the turned down clinches are smoothed away, and the shoe accordingly is greatly more liable to be torn off. These disadvantages should surely outweigh the fancied smartness which rasping the crust is supposed to impart to the feet of the newly shod horse."

How to Secure a Fast Walker.

Recognizing the fact that the fast walker is always desirable, and more valuable than any other, the question is how to secure this trait in all the colts. There must ever be differences in speed, no matter whether walking, trotting or running, but these are each largely matters of education, and it is to this we would call attention. In the first place the colt must be got bridle-wise as early as possible, and the earlier this is attempted the easier for both owner and animal. When fully under control the harness should be gradually added, and the use of the reins in guiding in every direction. This work cannot be too thorough or systematic, for here is the foundation for the future. He should be made to go in every way at the will of the driver. This much gained, the walking gait comes next. The aim must be to encourage the natural action in walking, without allowing the colt to trot. If this is attempted, bring to a full stop at once and begin again. In this way he will soon catch the idea that it is fast walking and not trotting that is desired, and improvement will be seen. Gradually urge an increased speed in walking until the habit becomes fixed. This may be trying to the breeder, but in this way only can this very desirable trait be established. It is of the highest importance, and the breeder who fixes this characteristic in his family will always find a ready sale for his colts at prices that will repay for all trouble. The work accomplished in an individual renders it much easier in the next generation, and soon it becomes a trait in the family. Here is where the greatest compensation comes in to the breeder. These advances gained in a single animal pave the way for still more later, and add to the worth of all stock. These questions are repeatedly urged, not alone with reference to present results, but with the thought of future possibilities. They all run in the practical line, where the farmer with one brood mare can secure as much advantage as the breeder with twenty.—*Maine Farmer.*

The American Southwestern Association offers a solid silver cup worth \$50 as a special prize at the next Pat Stock Show at Chicago, for the best Southwestern weather. The winner of the prize may win it in trust for one year, and if so fortunate as to win it the second time, it becomes his actual property. The animal must be one year old and over two, pure bred, and the property of the exhibitor.

Horse Gossip.

OVER 170 new owners in the 2:30 list so far this season.

BESSMER, the same little pacer that made such a sensation last year, has not let down this season. He was beaten at Cleveland, where Brown Hal won and Roy Wilkes was second. Bessmer was second in one heat made in 2:18, and third in another paced in 2:13. Roy Wilkes took the second heat in 2:13.

PILOT MEDIUM is not losing any reputation this season as a sire. Jack and Lady Bullion are doing so well that it is difficult to predict where either will end up. Jack's record is 2:15, and he won in the 2:20 class at Cleveland in straight heats, all trotted under 2:18. Lady Bullion also won in the 2:22 class in straight heats, getting a record of 2:18.

Is the 2:15 pacer race at Aurora, Ill., recently, the three-year-old pacer, Sir Thornton, owned by H. Downs, of Geneva, O., won the race in a field of twelve starters, in the remarkable fast three-year-old time of 2:22.4. 2:20.4, 2:21.4. A few days after he was found dead in a stall from colic. He was sired by Revellie, dam by Young Wexy.

ATELL, the wonderful three-year-old, lowered his record to 2:14 at Cleveland, and Alberton, another three-year-old, made a record of 2:23. Then Guy, the great unreliable, trotted a mile in 2:05. It is claimed, however, that the Cleveland track is the fastest in the country, and this may have helped the flyers a couple of seconds. All the same it was wonderful trotting.

WHEAT BORN recently caused the death of a horse near Clinton, N. J. While drawing a reaper the horse bit off the heads of the standing grain, and after he had been at work about two hours he fell down and died. An examination was made and the back part of the tongue was found to be full of white boards. On opening the throat the boards were found in great quantities sticking through the windpipe, from the effects of which it is believed the animal choked to death.

MR. WALLACE having announced in his Monthly that the Lansing track was short. Prof. R. C. Carpenter, of the Agricultural College, made a survey of the past week, and found that it was one and 94-100 feet short, but, owing to the bad curves in the pole the Professor thinks a horse going at full speed would have to go fully five feet over the half mile. The pole will be changed so as to make the track full length, but it is not likely that less than two feet will have any effect upon the time made by horses hereafter.

THE success of the Michigan bred trotters Gene Smith, 2:16; Thornless, 2:16; and Hendry, 2:18, is a great card for Dauntless, their sire. He is also the sire of the game little pacer Ed. Annan, who won the 2:17 pace at Buffalo. Dauntless is a son of Hambleton 10, dam Sally Fessenden, by Smith's Clay, a son of C. M. Clay, Jr. He was brought to Michigan by the late Capt. Hendry, of Downsville, and until last season did not show up very well as a sire. He has now ten trotters, and one pacer in the list. It is wonderful how the blood of Hambletonian will assert itself. Dauntless is now 33 years old, and is owned at Muscatine, Iowa. His best colts were all bred in this State, and mostly in Cass County.

The Farm.

Silo Presses and Ensilage.

The following is a description of a silo press erected at the Agricultural Experiment Station at Minneapolis, Minn. There are two presses located in the barn, each 16 feet square and 21 feet in height. They are so arranged that the top of each is on a level with the threshing floor of the barn and the bottom is on a level with the basement stables, thus facilitating the feeding of the animals. To a height of 11 feet are walls of stone, 15 inches in thickness, above which the walls are wood. The bed is of concrete, composed of one part Louisville cement, two parts sand, with enough water and gravel added to make a stiff mortar. The floor has a slope of one inch to the center, where is located a well two feet in diameter and four feet deep, filled with gravel and stones, the bottom being left open. The walls are boarded up with matched flooring, a space being left between that and the main wall for ventilation. Two thicknesses of tarred paper are tacked on to this lining, and over the paper another covering of matched flooring nailed on vertically. This gives an air-tight, water-tight and frost-proof silo, and one which is constructed to facilitate filling and feeding, and is admirably adapted for preserving the ensilage.

For the greater preservation of the wood, the partition walls are only carried within an inch and a half of the floor, and before filling the silo a strip of tarred paper is folded and nailed to a strip of board at the bottom, on one-half of the tarred paper lying on the floor and being held firmly in place when the silo is filled by the ensilage. This makes an air-tight joint when the press is filled, and when it is empty the paper is raised or removed, and a free circulation of air is established, which purifies the chamber and dries and preserves the board partitions. This method of construction, with the use of an air chamber, has proved satisfactory, and in spite of very severe winters has prevented the contents from freezing.

It is well to bear in mind in constructing a silo that it is only a preserving can on a large scale, and the same rules should be observed in both cases. The timber used may be rough, but it is necessary to make a liberal use of tarred building paper. The walls of the silo must always be vertical, that the contents may readily settle by gravity. They must also be strong enough to withstand a strong lateral pressure. It is absolutely essential that the bottoms and walls be air and water tight. It is preferable to divide the space intended for the silo into three equal compartments, so that they may be filled alternately to a depth of four or five feet and then allowed to ferment, the heat rising to 100 to 140 degrees before the section is again filled. The silo in practical use should not be too large, as it is advantageous to remove an inch or more from the surface daily, the ensilage thus being always found sweet and pure and before any mould can gather thereon.

The report of the Department of Agriculture also issues the following directions for the preparation and treatment of ensilage: Although any plant or vegetable fit for eating food when green may be preserved for an

indefinite period in the silo, Indian corn is considered the cheapest and best for ensilage. Such varieties of the corn should be planted as will reach maturity in an ordinary season in the section of the country in which it is to be raised. Plant in rows wide enough to admit of easy cultivation and just thick enough to allow each stalk to form a well developed ear. The crop should be gathered when the grain is fully formed, but in the doughy state, at which period it contains the greatest amount of digestible matter. Corn partially dried is equally desirable for the silo. The corn should be cut in about one-half inch lengths.

In filling the silo, care should be taken to spread it evenly as put in, to pack the corners and sides firmly, to cover the top with a layer of boards or plank. Spread over this a double layer of tarred paper, and then a layer of rough boards, and on the whole a moderate weight of from fifty to one hundred pounds to the square foot. The weighty material may be anything convenient, sand, gravel, or dirt in barrels, stone, fire wood, farm implements, for storage and the like.

Pits should not be opened until fermentation has ceased and the mass has cooled, which will be in from six to eight weeks from the time of filling.

In feeding from the silo, it is better to feed by day from the top in uniform layers, rather than from top to bottom, as by this method the surface is not exposed long enough to the air to become sour.

Ensilage can be grown and preserved much cheaper than root crops, by the ordinary farmer, and will successfully take their place in feeding value.

Corn ensilage is not a complete feeding ration, as it is deficient in protein, and must be supplied by some by-fodder, as bran, shorts, or oil cake.

The best results of feeding ensilage are obtained by using it in combination with dry fodder, the best of which is clover hay.

Ensilage furnishes a succulent and easily digested food, greatly relished by all animals during the winter months, when their diet would otherwise be confined to a regime of dry provender. The cheapness and ease with which the silo can be constructed, the certainty with which, when properly constructed, it will preserve the feed from injury, the low cost of raising the crop, and the great yield per acre as compared with hay crops, and the value of a cattle food, render this the cheapest provender a stockman can raise.

Such are the directions given by this report and such are the deductions arrived at.—*Scientific American.*

Multiplying Potatoes.

A writer in the *London Garden* gives an account of the method he adopted to increase a high-priced potato. The variety was the kind known as the *Pride of America*, for which he gave something like a dollar for two tubers, one of them large and sound and the other small and diseased. Early in March they were laid in a pan, covered with fine soil, and set on a warm staging in his peach-house. They soon sprouted, and when the sprouts were three inches long, they were carefully pulled off and the tubers returned to the soil. The sprouts were potted off singly, in good, loamy soil, previously warmed, 35-40 pieces being used. They were set on the front staging and watered. They soon became well established, and were transplanted. The tubers gave a second and larger crop of sprouts than before, and these were treated like the first. A third but smaller crop of shoots was obtained. All the plants formed a row in the garden fifty-one feet long, on deeply-dug, thoroughly pulverized ground, eight inches apart. Inverted flower pots protected them from any threatened frost, and evergreen branches were used for the same purpose later on. Two bushels were obtained from the one pound of seed. The above is substantially the process given in the *Garden*, greatly reduced and condensed; and it be-
 affords useful suggestions to those not familiar with the process adopted by gardeners for rapidly increasing rare and costly sorts.

English Farming.

An American farmer, visiting England to see what he can learn from old world agriculture, writes in the *Country Gentleman* of the English system of rotation. The four-course system is universally pursued. The stable manure is spread upon the grass land, which is plowed in August and sown to wheat in September. No grass seeds are sown with the wheat. Wheat is followed by roots, which are manured with commercial fertilizers. These are fed off upon the land by sheep, and thus the heaviest manuring is done, as the sheep usually receive the linseed cake with the roots. In the spring oats or barley follow the roots, and with them the grass and clover seeds are sown. The land lies one year with these and then goes into wheat again. This is the regular four-course system, and it will be seen, before wheat harvest, three-quarters of the land is in grain, as the turnips are not yet in. It makes these counties look like an immense grain field. This appearance is heightened by the almost entire absence of fences, except the few hurdles penning the sheep on special flocks.

Selecting Seed.

The American *Cultivator* says: As soon as the sweet corn has been picked for market, cut it up by the roots, and if there is no silo to put it in, allow it to wilt one or two days, then bind in good sized bundles, and make large stacks of it, so it may cure for winter feeding. A ton of it when well cured is worth almost as much as a ton of English hay for neat cattle, whether for work, growth or milk. Horses also will thrive on it if it is cut up for them, and a little warm water turned over it an hour or so before it is fed out, covering it so that it may be steamed a little, and the tougher fibres more easily digested.

It is time in the earlier fields to select and market the earliest ripening ears for seed; and the same thing should be done in later fields as the ears get into the milk. There are some crops which seem to do better by bringing seed from other sections, or from a different soil from that which they are to be planted on. In fact farmers and seed growers have something to learn in this direction. We can undoubtedly, increase the tendency to grow more straw and less grain, more leaf and stalk and less roots, or we can reverse the process, by a selection of soil on which the crop is grown, and a few years of cultivation may make this tendency hereditary to a certain extent. But the farmer who has a variety of sweet corn or field corn which is anywhere near his idea of what it should be, cannot do better than to save his seed from his own field, and improve it where he thinks improvement is needed, by selecting the best and earliest ears from the best part of his field. The best of the field is not always, or often, that where the stalks grow the tallest and rankest. There is such a thing as having too much stalk and too little grain.

Fields of corn of the same variety, one planted very early and the other later, it will be well to save the seed corn from the later planted field, if it ripens up equally well, as the one will have ripened its seed in from ten to twenty days less time from planting the other. This may not have any direct influence upon the next crop, but also it may affect its earliness to some extent, and probably would if continued a few years make a considerable difference. In this climate it is quite important to establish the habit of ripening in 100 days from planting, instead of 130 days, and this difference

can only be made, and maintained after it is made, by selection of that seed which ripens in the shortest time.

As the early potatoes are now being dug for market, a question arises in regard to saving seed from them. This opens up a large field for investigation. Are these potatoes as good for seed purposes as those of the same variety planted later and ripening later? Are those which are too small for market as good seed as larger ones? Is the small potato planted whole as good as the large potato cut to a few eyes? Will it pay for a farmer in southern New England to save seed potatoes at all, or would it be better to select the merchantable ones and feed the others to his stock, and purchase potatoes for seed which have grown farther north?

In an address given by Edmund Hersey, of Hingham, before the Massachusetts Board of Agriculture, Nov. 30, 1888, he states as a result of seven years' experiments: "1. Whole potatoes will produce a crop from a week to ten days earlier than cut potatoes. 2. Small whole potatoes will produce for many years in succession just as good, if not better, results than large potatoes cut to the size of the small ones." Experiments made at the experiment stations of Massachusetts and New York seem, so far as they are carried, to show the same thing.

The New Cattle or Horn Fly.

Many notes have appeared in the papers during last summer and the present summer concerning a new pest which is worrying cattle in Pennsylvania, New Jersey, Delaware, Maryland and Northern Virginia. It is a small fly half the size of a house fly, which settles in great numbers around the base of the horns and other portions of the body where it cannot be reached by either the tail or the head of the animal. It sucks a moderate amount of blood, reduces the condition of the cattle, and lessens the yield of milk from one-third to one-half. This new pest has been investigated the present summer by the Department of Agriculture through the Acting Entomologist, Mr. L. O. Howard, who has succeeded in tracing the entire life history of the pest. He finds that the fly lays its eggs, usually at night, in freshly dropped cow-dung, and that for the development from the egg through the maggot stage to the perfect fly again, a space of only 12 days is necessary. This rapidity of reproduction accounts for the wonderful numbers in which these flies appear, and it follows with reasonable certainty that the insect will pass the winter in the quiescent stage at the bottom of dung dropped late in the fall (the approximate date to be determined later). The preventive is obviously to lime the dung in the fall in places where the cattle preferably stand at night. At the present time applications may be made to milk cows and valuable animals which will keep the flies away. The applications may be (1) fish-oil and pine tar with a little sulphur added; (2) tobacco dust, when the skin is not broken; (3) tallow and a small amount of carbolic acid. The latter application will also have a healing effect where sores have formed.

Exercise for Cows.

The question of exercise for cows is receiving some attention with that of soiling. It appears that for years Prof. Daniels, of the Wisconsin University, has kept a cow standing in the stable from November to May, without apparent detriment. The Hollanders put up their cows in the fall and they do not leave the stable until the grass comes. They do not appear to need much exercise beyond chewing the cud, standing around, getting up and lying down. But the Hollanders keep the stables scrupulously clean. Cows must have sweet, wholesome air, and it is believed by good judges that sunlight, or at least full daylight, is essential. A few hours in a clean yard is no drawback, to say the least.

found very desirable, as the application could be made more thoroughly, quickly and easily in this than any other way. One man worked the pump, while two others with their finger tips vigorously "shampooed" the animal as the liquid was forced into the hair through the nozzle. The time required to treat the ten animals was fifty minutes, and the amount of the emulsion required was less than eight gallons. When cloths were used it was found much more difficult to thoroughly wet the hide, as the hair would mat down and shed the emulsion. The next day after making the above application the animals were examined, and it was found the lice were all dead. As an eight per cent. emulsion costs less than two cents a gallon, and as it takes so little time to make the application, it seems needless that any one should allow his stock to become seriously lousy.

A number of animals were treated like the preceding with potato water. Seven bushels of potatoes were covered with water in a large caldron and boiled until thoroughly cooked. The amount of water poured off after the boiling was eight gallons. This was used like the kerosene emulsion, except that it was applied to the animals with cloth, the water being too dirty to admit of the use of the pump and nozzle. Examinations of the cattle the first, second and third days after the application showed no dead lice but plenty of living ones. About two weeks after this I was told by the men that cared for the stock that the lice had nearly all disappeared from these animals, and on examination I found such to be the case.

Capt. R. P. Speer, who requested that the above experiment should be made, says he has repeatedly freed his young stock from lice by two or three applications of potato water made at intervals of about one week. Those who use this remedy do not claim that it will destroy the eggs.

Pure pyrethrum was dusted upon the back and neck of two young animals where the lice were very numerous. The following day the hair was full of dead lice, and no live ones could be found about the treated parts.

Of other remedies that are often recommended, probably a strong decoction of tobacco and a mixture of sulphur and lard are two of the best. A solution of corrosive sublimate or a mercurial ointment will kill the lice, but these are dangerous to use. Carbolic acid soap, sulphate of potassium and ashes all have their advocates, and probably are useful in destroying vermin on domestic animals, but I cannot speak of them from experience in this connection.

Business Methods in an Agricultural Society.

There is one agricultural association with a successful record. In 1878 the Onondaga country, N. Y., agricultural society was organized with capital of \$10,000. It had hard work to sell \$3,300 worth of stock when managers took the balance at \$850 each, on which they advanced 50 per cent. They attended to business and for three years the dividends covered the remaining 50 percent, and for the first seven years the annual dividends averaged 30 percent. Four years ago they quadrupled the capital to \$40,000, bought 42 acres of land, now in the fifth ward, Syracuse, for which they paid \$30,000, and ever since then have been declaring 5 per cent dividends until last year, when the profits in hand were held ostensibly for improving the society's new grounds if the State fair should locate there. But there were long heads in the organization. The stock was scattered about among 692 shareholders. Certain gentlemen went about quietly buying the stock at prices ranging from 100 to 150 percent. They then decided to wind up the business by disposing of the 42 acres of land, which was sold at auction the other day at \$75,000 cash. Added to this the balance on hand through last year's receipts, upon which no dividend was declared, is some \$17,000, making a total of \$92,000. The capital stock is \$40,000; divided into 4,000 shares of \$10 each, the lucky holders of which will receive \$33 for each \$10 share. Assuming that one-half of the stockholders had sold out to speculators—and probably more than one-half did thus sell—somebody has made a nice sum of money by the arrangement. However, the fact remains that as a society good management and the best luck have prevailed during its history. It is one of the few similar organizations which have made money and been successful from the start.—*N. E. Farmer.*

Agricultural Items.

The conditions requisite for a first-class seed-bed for wheat are firmness and compactness. The grain sphis, whose appearance so alarmed the farmers of this and adjacent States is, happily, infested by a parasite which is quite formidable and will greatly check its increase.

A FARMER in Loure township, Montgomery County, Missouri, claims to have raised the biggest crop of wheat to the acre in any country. He cut and threshed 140 bushels from two acres of land, this season. This is vouched for by Judge Samuel Miller, of Montgomery County.

SENDING down fields infested with wild mustard is not a safe plan to follow. The seedling stops the growth, but the seeds lie dormant for years, only to come up when the soil is again stirred. It can be subjugated by pulling while in bloom. Burdock is "a tough customer," but successive cuttings below the surface will finally get the better of it. Many imagine that if a weed be cut when in full bloom there will be no danger of its maturing seeds. This is a great mistake, for many of

the seeds are already fully developed, and there is sufficient moisture in the stalk to mature the seed.

The Connecticut Experiment Station, in its last report, discloses some very great frauds in the composition of cattle foods. A "concentrated food for cattle, sheep, swine and horses," sold at \$100 per single ton and \$100 in three ton lots, under analysis turns out to be a mixture of wheat and corn, and 13 per cent of salt. Wheat bran, at \$20.50 per ton, would supply an equal amount of nutriment. A "concentrated egg-producer," made at Boston, offered at 60 cents a pound, equivalent to \$600 per ton, is quite similar in composition and value to the "food" above mentioned, and costs the maker [about \$22 a ton. Is it any very great wonder that farmers are suspicious of any thing of the kind, the value of which can only be ascertained by scientific analysis? Are they not justified in going slow? Every such exposure injures the business of those who sell really valuable foods.

HENRY STEWART says, in the *Country Gentleman*: "One of the most effective remedies and preventives of parasites on domestic animals is kerosene or crude petroleum, sponged on the hair lightly, and thoroughly worked through the coat by brushing. Although I have never been troubled by these pests among my stock, yet I have been in the habit of frequently using the crude petroleum in this way, and on account of its viscosity, adhesiveness and more penetrating odor, as well as for its lesser pungency, it is far preferable to the more fluid and stord kerosene. My custom has been to apply a sponge, slightly smeared with the oil, to the brush, and then apply the brush to the skin in the usual way. The odor soon passes off, even from cows, and the coat is left soft, smooth and glistening. The refined oil, if used in any sort of excess, will cause inflammation of the skin and loss of hair."

Five Harvest Excursions.

The Burlington Route, C. B. & Q. R. R., will sell on Tuesday, August 6th and 30th, September 10th and 24th, and October 8th, Harvest Excursion Tickets at *Half Rates* to points in the Farming Regions of the West, Southwest and Northwest. Limit thirty days. For circulars giving details concerning tickets, rates, time of trains, etc., and for descriptive land folder, call on your ticket agent or address P. S. Eastis, Gen'l Pass. and Ticket Agent, Chicago, Ill.

NEW ADVERTISEMENTS.



Dealers say farmers would rather buy poor horse blankets than pay a few cents more for strength. Do they tell the truth?

FREE—Get from your dealer free, the 5/A Book. It has handsome pictures and valuable information about horses. Two or three dollars for a 5/A Horse Blanket will make your horse worth more and eat less to keep warm.

5/A Five Mile
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30 other styles at prices to suit everybody. If you can't get them from your dealer, write us.

5/A HORSE BLANKETS ARE THE STRONGEST.

NONE GENUINE WITHOUT THE 5/A LABEL.

Manufactured by Wm. A. Jones & Sons, Philadelphia, who make the famous Horse Brand Blankets.



"JONES HE PAYS THE FREIGHT"

Scales of all sizes. 5 Ton Wagon Scale with Brass Tare Beam and Beam Box, \$60.—For Free Price List of all kinds, address JONES OF BINGHAMTON, BINGHAMTON, N. Y.

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Knuckle Joint and Screw Presses, Drifters, Extruders, Pumps, etc. Cuttings and Valves Free. Address C. G. HAMPTON, DETROIT, MICH.

WELL DRILLS for all purposes. Send 30 cents for mailing catalogue with full particulars. CARPENTER, ST. AND CARROLLAINE.

Agents Wanted **LIVING LEADERS OF THE WORLD** to sell Graphic Biographies of Sovereign Statesmen, etc. Elegantly illustrated. A mastery work. HUBBARD BROS., PUBLISHERS, CHICAGO.

IRRIGATED LANDS in Rio Pecos Valley, in Southwestern New Mexico. Choice climate, store soil; abundance of pure water; a delightful climate all the year; almost continuous sunshine; altitude 5,500 feet; healthful; 30 acres will yield a competency. Write for particulars, naming this paper, to Pecos Irrigation and Investment Co., 44 Monroe St., Chicago, Ill.

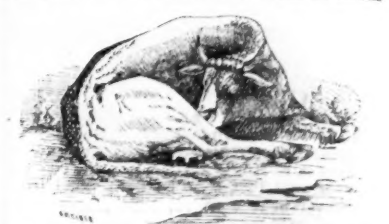
IF YOU HAVE

MALARIA OR PILES, SICK HEADACHE, DUMB AGUE, CONSTIPATION, SORE THROAT, AND BELCHING. If your food does not assimilate and you have no appetite,

Tutt's Pills will cure these troubles. Try them; you have nothing to lose, but will gain a vigorous body. Price, 25c per box. Sold Everywhere.

Milk Fever in Cows!

PROF. R. JENNINGS & SONS' **BOVINE PANACEA**



The only sure cure for Milk Fever in cows. It is also a Panacea for all diseases of a febrile character in cattle, when given as directed. Sold by druggists. Price, \$1.00 per package; 30 doses.

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Chicago Veterinary College. The most successful college of its kind. For further particulars address the Secretary, J. W. HIGGINS, M. R. V. V., 2537-2539 State Street, Chicago, Ill.

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ALL ODD JOBS CAN BE DONE. SAVING TIME AND MONEY.

\$45 WORTH OF TOOLS FOR \$20

AND THIS PAPER ONE YEAR FREE.

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FORGE.

The Forge will heat 14-inch round iron to red heat. 45 lbs. ANVIL AND VISE. 3 1/2 in. Steel Jaw.

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DRILL ATTACHMENT TO ANVIL AND VISE.

This can be used in any vise, or separately as a machinery. 2 Drills Points included. 2 LBS. STEEL HAMMER AND HANDLE.

3 1/2 lbs. BEST STEEL HOT CHISEL & HANDLE.

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Pair 18-inch BLACKSMITH'S TONGS.

PAIR FARMERS' PINCERS.

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9-oz. SHOEING HAMMER.

Horticultural.

Washtenaw Pomology.

The August meeting of the Washtenaw Pomological Society was well attended. The president and other officers being absent at the opening of the meeting, Mr. James D. Duncan was called to the chair. The undersigned read the minutes of the last meeting. The peach crop was discussed: Mr. McCreery: Many trees, especially on rich soil, have no peaches on. On top of the hill where the land is so poor that I could not raise white beans, the trees are full. We gave the trees a thorough cultivation. Peaches will be very large. H. Markham: Early varieties like Amsden's June and Alexander, full, later varieties, none.

A letter from Mr. Edwin F. Smith, dated July 26, was read, addressed to Mr. C. C. Clark in regard to the peach crop on the lake shore.

"The crop is lightest in Allegan Co., where the most trees are. The crop is best at South Haven and in that vicinity, but it has been dropping a good deal during the last two weeks. At Benton Harbor not many orchards are in bearing. On this shore, as a whole, there is certainly not over one half a crop, probably not over one-third."

J. J. Marshall: Mr. Lawton, of Lawton, Van Buren Co., reported the peach and grape crop destroyed by hail storm. Mr. Hill's Chilli and Barnard peaches bear abundantly, other varieties made a good growth of wood but the crop is very light.

O. R. L. Crozier: My early peaches bear abundantly, specimens very large.

Pears. E. Baur: Flemish Beauty a full crop, Bartlett one-half crop, Clapp's Favorite and Doyenne d'Ete nearly destroyed by blight. Lawrence and later varieties one-half of a crop. Neglected to salt the trees for several years.

Mr. C. H. Wines, of Chelsea, raised pears for 25 years, never troubled with blight. Used alkali in abundance. Mr. Wines and our friends from Chelsea and other parts of Washtenaw are most welcome to these meetings, which belong to the county.

Mr. Charles Treadwell: Full crop of pears, believes in salting the bark when the sap is running.

Apples. Mr. McCreery: Full crop, smooth, and free from insect marks.

Mr. J. T. Ellis reported Red Astrachan on sand full crop, on clay none at all.

Mr. M. S. White: Northern Spy fair and full.

Mr. J. J. Marshall: No apple worms this year. The twilight blight appeared this year is the same as in the pear. The apple tree has a tougher wood and the blight does not work back into the limbs, and only affects the tender shoots.

Prof. B. E. Nichols: Transportation by freight a success, had no interruption. Safer and better handling by freight. Should have a ventilated car, even open car better than a close one. The return of crates should be better managed. Mr. S. Mills likened the return of crates by the express to a cyclone. The commission men used to return the crates to the berry baskets and middle pieces in the same way as received, not nested together, and to add to the cost of berries the cost of baskets.

Varieties of Celery.

E. E. Summey, a writer on horticultural topics in the *Country Gentleman*, gives the following notes of his experience with varieties of celery. He says:

As a rule the dwarf and half dwarf sorts are to be preferred for ordinary growing. Boston Market is the best long keeping variety, because of its slow blanching habit, and is largely grown by market-gardeners; good size, excellent flavor, nutty and crisp—of a fine, white color.

Henderson's Half Dwarf grows larger than the Golden Dwarf, often yielding superior celery. It is a good keeper, and in some cases grown quite extensively, but it is liable to be soft and unsalable.

Golden Dwarf, originally a most excellent variety, seems of late to have run out. Where one can get the genuine plants or seeds it may be selected without hesitation, as it has been kept until May in a good condition by market gardeners, and its flavor is not inferior to any variety. Pink celery is in much more favor in England than in this country, because of its ornamental appearance and also from its possession of a better flavor, more nutty than the white sorts. For private growing it can be highly recommended, though for market it should be lightly grown as it is not in great favor yet, although its use is increasing.

White Plume above all others is the celery both for amateur and early market purposes, having many superior qualities. Its introduction began a new era in celery culture, as will be more fully explained hereafter. By storing before blanching, it can be kept until April, and it can be had earlier in the fall, as even when sowed at the same time as other sorts it does not run to seed nearly so quickly, while it blanches in half the time required by the others. It grows well, and with good treatment reaches the size of the half dwarf sorts; it will blanch even if no soil is sowed against the stalks, but it is better to do so as a better flavor is thus given.

Perfection Heartwell, a somewhat newer variety, has given good satisfaction among growers generally; it greatly resembles the Golden Dwarf as it used formerly to grow, the heart being a fine golden yellow.

Large Ribbed, when slowly grown, is of good flavor and a strong grower; if manured too heavily, the stalks will be hollow and soft, but otherwise it is a good sort.

White Solid, probably the best of the large growing varieties, is, as its name implies, of a good white color and very solid, and on good soil, well cultivated, grows to a large size.

The above embraces all of the most desirable sorts, and from it may be made a choice that will afford this salad from July to May.

The first and most important consideration in successful celery culture is the soil, and it is not too much to say that too much

preparative work can hardly be applied, while the two dressings of well-rotted manure, well plowed and well worked in, must not be stinted in the least; but under no circumstances will it do to apply manure when the soil is half rotted, as in this condition the celery is almost certain to be rusty and unfit for use—White Plume being especially liable to this disease.

The Cranberry Fungus.

Some of the cranberry bogs of New Jersey have been attacked by a fungoid disease known as the gall fungus, or red rust. It appears to the naked eye as a small, deep red gall-like structure growing from the surface of the infected plant. These galls appear upon any young growing part of the plant, and sometimes extend over the leaves, flowers and fruit. In extreme cases the whole bog is reddened on the surface, and the plants are stunted or wholly destroyed, and the crop is ruined.

Prof. Halstead, who has been investigating this disease, which promises to be very destructive unless it can be checked, says: "This fungus, when considered microscopically, is quite different from the rusts of the grain fields, the smut of corn, oats and the like, the mildew of the lettuce and the various moulds which attack many kinds of fungi. It belongs in the great group of plants which contains thousands of strange and minute forms of plants, ranging in size from the puff-balls and toad-stools down to those so minute that a high magnifier is needed to make them appear of the real size of such fungi as bread mould and grape mildew. The gall fungus of the cranberry is one of the simplest forms of those peculiar parasitic plants."

We have not heard any reports of the appearance of the fungus in the cranberry marshes of other States. Massachusetts and Wisconsin produce large quantities of this fruit, and in good seasons Michigan bogs give good yields, though the output is not as great as that of New Jersey and the Cape Cod district, where cranberry growing is a specialty.

Grading Fruit for Market.

Faulty packing is causing considerable trouble and complaint in the markets of the East, as well as our local market. The principal cause of complaint is from ungraded fruit. Growers must grade their fruit if they desire to secure anything like a market price. Your packers should receive positive, imperative instructions to grade as to size. Small fruit distributed through a box or basket of otherwise fine, large fruit, will kill the sale. There is hardly a shipment made but what should be packed under at least three grades as to size. Dealers and buyers, having a trade for handsome, large fruit will pay a handsome price for packages well graded; others having trade for medium-sized fruit will purchase the same at a reasonable price; while others having a cheap trade will purchase the small fruit at a low figure. The net results from shipments thus graded will be far greater than to pick and pack all sizes together, expecting that the large fruit will sell the small fruit. This is one of the greatest mistakes that the fruit grower can possibly make. The large, fine fruit will sell itself at a good price, the other sizes and grades will sell themselves; but, if mixed all in the same package, the large, fine fruit will sell for no greater price than the small or medium-sized fruit would in a package by itself. This is the true business, and growers and shippers have been informed of it time and again, and in the face of these facts and information they will pick, pack and ship 3,000 miles to New York, without the slightest regard as to grade, and frequently, fine fruits ungraded, sell in the New York market for barely enough to pay freight and shipping expenses; whereas, if properly graded, would pay the shipper a handsome net profit. California fruits at the East this year are receiving a terrible "black eye" from faulty packing. It would pay California fruit growers, through their various associations, to employ inspectors or graders, who should be called upon to inspect and pass all fruits packed for Eastern shipment, and the manager and dispatcher of these fruits at Sacramento and elsewhere should be instructed not to show and forward fruits to the East that do not bear the inspector's stamp. Great injury is bound to result to the fruit growing industry of this State if more care is not exercised in the methods of packing, grading and style of packages used. Taking this season as a guide, unless some radical change is wrought, it is doubtful if growers generally will ever become packers and shippers to distant markets.—*California Fruit Grower.*

The Yellows.

The Benton Harbor *Palladium* gives an account of the visit to that section of Prof. E. F. Smith, connected with the Department of Agriculture, his mission being to study the peach yellows. The *Palladium* says:

In an examination of about twenty thousand trees in this vicinity, Messrs. Smith and Brunson found only thirty diseased trees, and the owners of these were advised to destroy them at once. There is a State law on the subject, with severe penalties for failure to obey. Mr. Smith, however, was earnest in his belief that while this fortunate freedom from the dreaded disease now exists here, it will require constant vigilance to maintain this immunity from one of the most insidious and fatal foes of our orchards.

"One man constantly employed during the summer could watch the trees of a whole township, at a comparatively small expense, and could, if he were active and intelligent, keep the yellows down and out."

"The necessity for a peach patrol, as it may be called, is manifestly great, and the authorities who have the power should see that every township in Berrien county has commissioners and that the commissioners do their duty."

"The disease is known by the withering of branches, the smallness of the leaf and the appearance of red spots under the skin of the fruit. The affected peach becomes ripe prematurely and is insipid in taste. It is not poisonous, so far as known, but is not desirable or fit for food. There is also a tendency to fungous and tufted growths about the tree."

"The older residents of this section well know the vital effects of this blight. In 1874 there were 6,000 trees in this township; in 1884 the number had decreased to 508—a

startling destruction, due entirely to the yellows. Then the trees were generally destroyed and the disease, as believed, was eradicated. New orchards were planted and are now rapidly coming into profitable bearing. They are at present almost free from the yellows and if the blight can be warded off by watching, let this vigilance, by all means, be provided."

Prof. Smith further stated to another paper that the "yellows," as the disease is termed, is a matter of vital import to Michigan peach-growers; and the havoc wrought during the past few years would aggregate hundreds of thousands of dollars. In some districts which he has visited, its presence could be traced back for over fifty years, and he claims it is not due to the impoverishment of the soil, as in his experience all soils, whether new or old, fertile or infertile, had suffered alike. He is inclined to attribute it to atmospheric causes, and has demonstrated that the disease is contagious, by a series of painstaking experiments.

Prof. Smith states that he has heard of numerous remedies, has himself experimented with some, but never knew of a well attested case being cured, and thinks the only safe course is that pursued by the nurserymen of Van Buren County, namely, to cut out and burn at sight all suspected trees. He has observed that healthy young orchards are rare in sections where the disease had formerly destroyed the old trees, and reaches the conclusion that the air is infected with its germs.

The experiments which he has conducted in propagating the disease by budding and by planting from infected stock, are confirmatory of the conclusions reached by our home growers, after a similar series of experiments several years ago.

The professor will make a thorough investigation of the peach district, and hopes to evolve some method by which Michigan peach growers may be protected from the ravages of the disastrous yellows.

Barrenness of Grapes.

The cause—a most common occurrence—of this want of proper pollen at the time of blooming. Many varieties, especially of the pure species, the riparia, rupestris, cordifolia, a-tavalia, etc., always have relaxed stamens and, if standing at a distance from vines having erect stamens, will not set much fruit, yet will bear abundantly in the vicinity of varieties with erect stamens. In nature even these practically pistillate vines find plenty of pollen, since over one-half of the wild vines are purely staminate or male. Prof. T. J. V. Munson's observations have served to make fruit growers in general pay more attention to this point, which has considerable practical bearing. Lindley, Brighton, and many others (most of Rogers' Hybrids among them) have relaxed stamens and, if planted alone in vineyard are almost fruitless, but planted among Lady, Martha, Concord or many others that have erect stamens and bloom at same time with them will bear abundantly. The variety to be fertilized should begin blooming a day after the one which is to furnish the pollen. A grape vine remains in bloom from three to eight days, and each flower must be fertilized the first or at furthest the second day after it opens. Even the bearing vines with erect stamens do better if some properly selected males be planted in the vineyard, and it would not be a bad thing to use some of the wild male varieties of the woods for this purpose, planting them among our cultivated sorts according to their requirements, and merely for the sake of their free pollen producing and distributing qualities.—*Popular Gardening.*

Changing the Bearing Year.

The superabundance of fruit in the even years, and its scarcity in odd years, have led to attempts to change the abundant year, or to divide the crop between years. At a meeting under the Connecticut Board of Agriculture, Mr. Meech said he tried the experiment on a small Siberian crab, the trees of which bore the same year. He removed the blossoms from one with success, but after the second year it returned to its old habit. A. W. Cheever removed all the blossoms from a Gravenstein tree which bore every year. The next year it had a good crop of blossoms and of young apples, but they all dropped when half grown. The trouble was that the insects all poured into that one bearing tree among the barren ones, and destroyed them. When all the trees are changed by a sudden freeze, the insects divide their attacks, and the change is often permanent. Five years ago we shared all the blossoms from a Greening tree which bore heavily every year, and now it bears moderately alike every year. More experiments are needed on this subject.—*Country Gentleman.*

FLORICULTURAL.

An English florist has secured an entirely white fuchsia, which is said to be a decided acquisition. It is a vigorous grower and free bloomer, and very beautiful.

At the Paris Exposition, 3,000 varieties of roses were on exhibition, nearly every one in bloom. H. Ellwanger, in his work on the rose, published several years ago, described 935 varieties, most of them hybrid perpetuals.

The *Rural New Yorker* says: If you want a quick growing vine that is absolutely hardy, that will grow luxuriantly in a northern, shady position, that will travel from tree to tree, forming pretty arbors and wild entanglements, try the *Aetindia polygama*.

For out of door culture, a rose must be of vigorous constitution, free bloomer, able to resist mildew, fully double and of good form and substance. La France, Elise Boelle and Jacqueminot form a good trio of hardy kinds. Madame d'Watteville is considered by Peter Henderson to exceed in beauty any other rose. It is a creamy yellow, sometimes slightly shaded with blush, while each petal is edged with bright pink, sometimes darkening to crimson.

A Jacqueminot rose bush, bought seven years ago for a quarter of a dollar, this year bore over 1,000 roses. This extraordinary record is due, says its owner, H. S. Chubb, of Philadelphia, to the use of purely vegetable manure and the fact that the roses are invariably cut before the petals are ready to

drop, and are never allowed to perfect seed. It is cut back annually, but never severely; the gnarled old wood is removed, however, leaving young, vigorous branches. Some days 100 roses were open at once.

It is strange, thinks a correspondent of *Popular Gardening*, that the Abutilon is not more popular for window culture, by virtue of its many good qualities. It is a thrifty, hardy plant, not sensitive to changes of temperature, a free bloomer, not troubled by insect enemies, and deserving the name of "busy woman's flower," from its power to adapt itself to almost all conditions of culture. Its only fault is a spindling habit, but this is easily remedied by pinching back when small. The more they are pinched the bushier they grow and the more flowers they will produce. The double form is not as graceful nor yet as free a bloomer as the ordinary single varieties.

Among flowers which we cannot bear to give up when their season's cup of beauty is drained, but which we long to have abide with us, to admire their beauty and enjoy their companionship all the year round, the pansy is peerless, and very kindly it lends itself to ways and means for perpetuating its beauty. Large, well formed, well-colored blooms are, perhaps, more difficult to obtain during the heat of summer than at any other time; but the pansy fancier who will plant summer bloomers—from seed sown the autumn beforehand—in a bed cut in the lawn on its northern exposure, where there is partial shade, and who is willing to water copiously every evening during dry weather, giving stimulants once a week, will scarcely fail to secure the coveted two-inch blooms during even the hottest weather.—*N. E. Farmer.*

Garden and Forest says: "The gladiolus will grow under any conditions, but it will not grow well. A cool, moist atmosphere is the one in which they delight. Climate alone is what makes them succeed so well in England. Last year we had rain in abundance, with low temperature, and never before have we had such perfection in gladiolus flowers. We make a mistake in planting our bulbs too early. They should be kept cool and dry, and in a dark room until the first of July, when they will come into bloom about the first of October, throwing up spikes that for number and size of flowers would hardly be recognized as the varieties that bloom in midsummer. If planted early, so as to flower in July and August, they will be kept cool and dry, and in a dark room until the first of July, when they will come into bloom about the first of October, throwing up spikes that for number and size of flowers would hardly be recognized as the varieties that bloom in midsummer. 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MICHIGAN FARMER.

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P. B. BROMFIELD, Mgr.

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DETROIT, SATURDAY, AUG. 17, 1889.

This Paper is Entered at the Detroit Post Office as second class matter.

STOCK SALES IN MICHIGAN.

The following dates are claimed by Michigan breeders for sales of stock:

AUG. 21—Coe, Coleman, Livingston Co., Galloway cattle.

SEPT. 4—W. H. McEwen, of Bay City, Holstein-Friesians. Sale to be held on the Iowa Fair Grounds. J. A. Mann, Auctioneer.

OCT. 16—Coe Bros., Kalamazoo, Hereford cattle, Percheron Horses and Poland China swine. J. A. Mann, Auctioneer.

OCT. 24—A. W. Bissell, Pawmaw, Shropshire and Poland-China swine. J. A. Mann, Auctioneer.

WHEAT.

The receipts of wheat in this market the past week amounted to 344,442 bu., against 267,577 bu. the previous week, and 520,700 bu. for corresponding week in 1888. Shipments for the week were 265,573 bu., against 194,188 bu. the previous week, and 313,925 bu. the corresponding week last year. The stocks of wheat now held in this city amount to 137,179 bu., against 143,557 bu. last week, and 423,870 bu. at the corresponding date in 1888. The visible supply of this grain on Aug. 10th was 13,398,405 bu., against 12,688,123 bu. the previous week, and 25,228,962 bu. for the corresponding week in 1888. This shows an increase from the amount reported the previous week of 710,283 bushels. As compared with a year ago the visible supply shows a decrease of 11,839,957 bu.

Spot wheat has been on the up grade all the week, the advance on No. 1 white being 4c. per bu., and on No. 2 red 2½c. Futures have also gained a few points, but the advance has not been as great as in spot. Receipts are yet far below those of a year ago, and the grading is lower. In this latter respect there is some improvement over last week's receipts. Stocks are not growing here, the shipping and local demand taking supplies about as fast as received. Cables yesterday were dull at the opening, but this helped values in domestic markets. Futures were higher in Chicago, and both spot and futures advanced ½¢ to ¾¢ in New York.

The following table exhibits the daily closing prices of spot wheat (new) in this market from July 20th to August 16th inclusive:

July 30	No. 1	No. 2	No. 3
30	96	90	87
31	96	90	87
1	96	90	87
2	96	90	87
3	96	90	87
4	96	90	87
5	96	90	87
6	96	90	87
7	96	90	87
8	96	90	87
9	96	90	87
10	96	90	87
11	96	90	87
12	96	90	87
13	96	90	87
14	96	90	87
15	96	90	87
16	96	90	87

The following is a record of the closing prices on the various dates in futures each day during the past week:

Saturday	Aug. 10	Aug. 11	Aug. 12	Aug. 13	Aug. 14	Aug. 15	Aug. 16
79	79	79	79	79	79	79	79
Monday	79	79	79	79	79	79	79
Tuesday	79	79	79	79	79	79	79
Wednesday	79	79	79	79	79	79	79
Thursday	79	79	79	79	79	79	79
Friday	79	79	79	79	79	79	79

It is stated that reports to the government at Washington show the collective wheat deficiency of Russia, Hungary, France, and Germany this year to be 30,000,000 bu. Besides this there is an admitted deficiency of 25,000,000 bu. in India, with no wheat to spare for export from Australia to New Zealand, and the Argentine crop little short of an utter failure. The sum of these deficiencies exceeds 50,000,000 bu., which it is fair to presume will be wanted from the United States over and above as much as was sent out from this country during the latest crop year.

The Michigan crop report of August 1st shows that while the few returns received from threshers indicate a yield over former estimates, they are too few to base an opinion on. The reports from correspondents show that the crop will grade low. In the southern counties, 554 correspondents reporting the quality, 32 report it "good," 239 "average," and 283 "bad."

In the central counties seven correspondents report it "good," 49 "average," and 79 "bad," and in the northern counties 25 correspondents report it "good," 54 "average," and 18 "bad." This is confirmation of the opinion given in the FARMER six weeks ago that light weight and shrunken grain would be certain to follow the attacks of plant lice.

Daily Business, a Chicago trade Journal, says:

The failure of wheat to come forward from the country seems to have created a local scarcity of wheat. Holders have in a measure drawn in their shells. There is now in this city less than 1,500,000 bu. of contract wheat, which is a small amount in an ordinarily active shipping market."

One of the features of the wheat market was the purchase of 150,000 bu. at Chicago

for shipment to the River Plate, which confirms the report of a crop failure in the Argentine Republic, which is generally an exporter of wheat.

The London News, of July 30th, quotes a St. Petersburg Journal as to the crop outlook of that country, and says the Russian harvest this year threatens to be so bad as to spread not only distress and misery but discontent throughout a large part of the country. It is a remarkable fact that just those districts that usually form the granary for Russia are this year afflicted with one of the worst failures of crops on record. Following a large yield last year, something like a total failure is now in view, and this is most conspicuous in what are known as the steppe districts. Drouth, which often follows a good year, now reaches such a point that there is not sufficient fodder for the cattle during the summer months. Black and bare, like an endless plain covered with coal grit, lies the whole steppe, from which the dust, disturbed by the feet of wandering men, rises in clouds and fills the air, making the sun appear like a red ball in the sky, while even the breath is impeded. Farmers are reported to be disheartened at the prospect.

The Liverpool market on Friday was quoted steady, and slightly higher. Quotations for American wheat were as follows: No. 3 winter, 7s. 1d. to 7s. 4d. per cental; No. 2 spring, 7s. 3½¢ to 7s. 4½¢; California No. 1, 7s. 1½¢ to 7s. 2½¢.

The receipts of corn in this market the past week were 163,744 bu., against 533 bu. the previous week, and 15,304 bu. for the corresponding week in 1888. Shipments for the week were none, against 3,836 bu. the previous week, and 7,305 bu. for the corresponding week in 1888. The visible supply of corn in the country on Aug. 10th amounted to 6,988,546 bu., against 6,988,145 bu. the previous week, and 5,539,599 bu. at the same date in 1888. The visible supply shows a decrease during the week indicated of 49,596 bu. The stocks now held in this city amount to 7,979 bu. against 3,723 bu. last week, and 18,016 bu. at the corresponding date in 1888. The market is steady at the same range of values as a week ago, with indications of an advance. The monthly crop report shows corn to be in poor shape, with not more than half an average yield possible in the northern counties, and it will require a favorable fall to mature that. Quotations are 38c. per bu. for spot No. 2, and for August delivery: No. 2 yellow is quoted at 39c. per bu. The Chicago market was a shade higher yesterday, with spot No. 2 quoted at 35½¢ per bu., August delivery at 35½¢, and September at same figures.

The Liverpool market yesterday was quoted quiet but steady. New mixed western, 4s. 1½¢, per cental. In futures August sold at 4s. 0½¢, as did September and October.

OATS.

The receipts at this point for the week were 75,960 bu., against 53,017 bu. the previous week, and 122,291 bu. for the corresponding week last year. The shipments for the week were 36,377 bu., against 2,781 bu. the previous week, and 38,419 bu. same week in 1888. The visible supply of this grain on August 10th was 3,964,978 bu., against 3,603,730 bu. the previous week and 1,767,117 at the corresponding date in 1888. The visible supply shows an increase of 265,246 bu. for the week indicated. Stocks held in store here amount to 46,663 bu., against 22,296 bu. the previous week, and 37,005 bu. the corresponding week in 1888. The market is unsettled, and values are gradually working downwards. Quotations are 24½¢ for No. 2 white, light mixed at 23½¢, and No. 2 mixed at 22½¢ per bu. In futures No. 2 mixed for September sold yesterday at 32c., and for October at 22½¢ per bu. The Chicago market was also lower yesterday, with spot No. 2 mixed at 20½¢ per bu., August delivery at 20½¢, and September had 20½¢ bid. The New York market is fairly active, with prices beginning to work downwards. Quotations yesterday were as follows: No. 2 white, 31c; mixed western, 25¢ to 26¢; white western, 30¢ to 31c. In futures No. 2 mixed for August closed at 36½¢, September at 35½¢, and October at 36½¢ per bu.

That paper notes the sale of some Michigan X at prices about 1c below former quotations, but holders either weakened or the week was below grade.

As usual at this season of the year, the markets are very dull, and this season is no exception. We regard it as about the worst possible time to sell, as dealers generally have stocks and manufacturers have not yet begun purchasing. If a party wants to sell now he must force the market, and will have to accept a lower price on some grades than a month ago. There will be a very different feeling in the trade by the time the first frost of autumn reaches us.

Not Correct.

ANADORE, AUG. 14, 1889.

To the Editor of the Michigan Farmer.

In your paper, issued August 10th, I noticed an article which claimed that the Croswell cheese factory had sold its June cheese for nine cents. Now I know that to be a false report, although your informant may have been the Croswell cheese maker. I do not know who he was. Croswell sold its June cheese to Mr. Hebbert, of Stratford, Canada, at eight cents per pound. I know that you do not wish to publish errors, and believing this one to have been sent to gain a selfish end, I correct it.

W. J. NAPPER.

The Ohio Farmer says that Director Thorne, of the Ohio Experiment Station, has issued a circular announcing that a special arrangement has been made with the State University to furnish employment on the experimental farm for a limited number of students in the agricultural department, at 12½¢ cents per hour. During the fall and spring terms these students will work half of each day and study and recite the other half. No work will be given during the winter term, but constant employment will be furnished during the summer vacation.

A CORRESPONDENT inquires where Smith's Palm-nut meal can be got. We cannot inform him.

The exports of butter from New York

since May 1st, the beginning of the trade year, compare as follows:

For week ending August 12	Exports
Same week 1888	692,043
Same week 1889	120,021
Since May 1, 1889	6,146,965
Same time last year	1,609,225

CHEESE.

There is a wide range in values of cheese in this market at present, some dealers quoting at 7½¢ to 8¢ per lb., and others at 8½¢. Good Michigan full cream will probably bring the latter quotations. The outlook at present rather favors buyers, a further decline in American cheese being noted in Liverpool, which gives the seaboard markets a weaker tone. At Chicago the advance noted a week ago has caused exporters to hesitate about taking hold with any degree of activity, but holders are not disposed to allow any concessions in price. A fair home demand exists for all desirable kinds. Low grades are dull as usual. Quotations there yesterday were as follows: Full cream cheddars, 7½¢ to 8¢ per lb.; twins, 8½¢ to 9¢ per lb.; young Americas, 8½¢ to 9¢; State factory, light skims, prime, 9½¢ to 10¢; Swiss cheese, No. 1, 9¢ to 10¢; brick cheese, new full cream, 6½¢ to 7¢. The New York market is slow, and with exporters buying lightly and the home demand not active, sellers are rather anxious to get rid of stocks. Receipts are generally in good condition, but reports from Liverpool state that much of the American cheese arriving there is in poor shape, and that this fact has helped depress that market.

Quotations at New York yesterday were as follows:

State factory, full cream fancy, cold	8½¢
State factory, full cream fancy, white	8½¢
State factory, full cream choice	7½¢
State factory, full cream good	7½¢
State factory, full cream common	6½¢
State factory, light skims, prime	9½¢
State factory, skims good	9½¢
State factory, skims medium	9½¢
State factory, full skims	10¢
Ohio flat	6¢

The exports of cheese from New York since May 1 (the beginning of the trade year) compare as follows:

For week ending August 12	Exports
Same week 1888	4,074,238
Same week 1889	1,420,822
Since May 1, 1889	38,272,189
Same time last year	36,273,961

The Montreal market is quoted firm, with receipts arriving in fine condition. Quotations there are 8½¢ to 9¢ per lb., the latter for finest white.

At Ingersoll, Ont., this week, 6,000 cheese were boarded, but only 500 sold. Quotations 8½¢ to 9¢.

At Belleville, 1,641 were boarded and all sold at a range of 96¢ to 97¢. Quality very fine.

At Liverpool the market is dull, with a light demand and lower prices. American, new, finest colored, 44s. 6d.; finest white, 44s., a decline of 1c. on colored and 6d. on white, as compared with last week's prices.

WOOL.

The feature in the wool trade the past week has been the failure of the Riverside Mills at Oliveville, R. L. and Oswego, N. Y. They have been losing money since 1885, when they had been enlarged just as the reduced tariff on worsteds went into effect. But were kept up in the hopes of a change in the situation which would enable them to recoup themselves for past losses. The failure has pulled down the wool house of Brown, Steese & Clark, and George W. Hollis, who handled a great deal of pulled wool. These failures shocked the market severely, and had it not occupied a very strong position would have been followed by a decline in values. A few weak holders did sell under the influence of the scare, but practically values are unchanged, and more likely to rule stronger rather than weaker. The American Wool Reporter, which is generally very conservative, in fact rather "bearish" in tone, says of the market:

"Quotations will admit of but little change, being to a large extent nominal, although it is doubtless true that, owing to the present depressed and uncertain feeling, more satisfactory bargains could be secured by buyers to-day than a week ago. The mere dropping of one of our unfortunate wool houses, or the failure of the Riverside & Oswego mills cannot, however, seriously impair the strongly entrenched position of wool, and, despite the fact that the market is inclined to soften a little from week to week, it is the general opinion that the lost ground will surely be regained later on. The only thing for the dealer to do seems to be to wait until the clouds have rolled away."

That paper notes the sale of some Michigan X at prices about 1c below former quotations, but holders either weakened or the week was below grade.

As usual at this season of the year, the markets are very dull, and this season is no exception. We regard it as about the worst possible time to sell, as dealers generally have stocks and manufacturers have not yet begun purchasing. If a party wants to sell now he must force the market, and will have to accept a lower price on some grades than a month ago. There will be a very different feeling in the trade by the time the first frost of autumn reaches us.

Not Correct.

ANADORE, AUG. 14, 1889.

To the Editor of the Michigan Farmer.

In your paper, issued August 10th, I noticed an article which claimed that the Croswell cheese factory had sold its June cheese for nine cents. Now I know that to be a false report, although your informant may have been the Croswell cheese maker. I do not know who he was. Croswell sold its June cheese to Mr. Hebbert, of Stratford, Canada, at eight cents per pound. I know that you do not wish to publish errors, and believing this one to have been sent to gain a selfish end, I correct it.

W. J. NAPPER.

The Ohio Farmer says that Director Thorne, of the Ohio Experiment Station, has issued a circular announcing that a special arrangement has been made with the State University to furnish employment on the experimental farm for a limited number of students in the agricultural department, at 12½¢ cents per hour. During the fall and spring terms these students will work half of each day and study and recite the other half. No work will be given during the winter term, but constant employment will be furnished during the summer vacation.

A CORRESPONDENT inquires where Smith's Palm-nut meal can be got. We cannot inform him.

The exports of butter from New York

AMERICAN SOUTHDOWN ASSOCIATION.

By favor of the committee appointed by the American Southdown Association at its last annual meeting, I am allowed to say that the Association will make no special exhibition of Southdown sheep this fall. The secretary, however, has been instructed to confer with some of the leading Fair Associations with a view to their co-operation in making a grand display of Southdowns in 1890.

It is much with the breeders of Southdown sheep as with many a youthful heir to fortune. The latter depends on his good start in life to carry him safely and leisurely through. The Southdown breeders seem to think the undisputed testimony of all who know much about sheep, to the effect that the Southdown is the best mutton sheep in the world, and in many localities the best of all known breeds for wool and mutton combined, justifies them in expecting, while lying on their oars, they will drift on the gentle stream of utility, full-handed into port. Apparently they act on the belief that mankind, as a whole, must instinctively know and take to the using of the best.

This might have been the right way along back in the days of old, before newspapers and fairs were as common as now. But, however good or useful are even the best of domestic animals, they cannot be kept at the front by reliance on merit alone. Other breeds of inferior worth are sure to pass them in the race, and the great masses of the people never know of the better things they might have and might enjoy, but for the reticence of those who fail to keep pace with the times in matters of advertising, by means of the press and public exhibitions.

We must aim not only to have the best of things in sheep and other improved stock, but we must let it be known where they are and wherein they excel. Nor must we let it out once, or twice, or three times, but every day, all the year round, in all the good papers we can reach and at all the fairs at which we can exhibit.

The Association of Southdown breeders has undoubtedly the best field of its kind in existence, which, if rightly cultivated, will, in a few years, very greatly affect the meat producing industry of America, by giving us more good mutton per capita and less poor pork.

Rye for Fall Feed.

PLYMOUTH, AUG. 10, 1889.

To the Editor of the Michigan Farmer.

Will some of your numerous correspondents inform me in regard to sowing rye for fall feed? I had intended to sow a piece of corn to rye for feed this fall after the corn is off; but one of my neighbors sowed a piece two years ago, and out of five head he lost four of them, and he was told the trouble was changing from green rye to dry feed, which of course he had to when winter set in. Now, is there danger of this, and how can it be avoided? I am very anxious to sow the rye if it can be made safe. Please answer the above and oblige an old

SUBSCRIBER.

We can see how cattle taken from bare pastures in the fall and turned into good growth of rye might injure themselves by over-eating. But the stock has been on good pasture they are not likely to be injured in that way. We have never heard of any injury occurring to animals taken from pasture and put on dry feed. Perhaps some of our readers have experimented with rye for fall feed, and can give our correspondent the information he seeks.

The 27th Annual Commencement of the State Agricultural College is announced to begin on Sunday, August 18th, and end on Tuesday, August 20th.

DR. VASEY, Botanist of the U. S. Department of Agriculture, has just completed a new bulletin of the Agricultural Grasses of the United States, comprising not only the information contained in the bulletin on the same important subject, issued in 1884, but a great many important additions. There is an important and interesting chapter upon the cultivation of grass as an agricultural industry, containing many historical facts, and numerous very practical suggestions. In addition also to the scientific description given to each variety or species of grass for the benefit of more investigating minds, the Doctor gives considerable information of a more practical nature in regard especially to those grasses which have been found by experience to be the best adapted to the wants of the farmers in different sections of the country. Practical suggestions, for instance, in regard to the quantity of seed required per acre, as to date of sowing, best time for cutting, the soil and climate to which the various grasses are specially adapted, and in the case of pasture, suggestions as to the proper combination of different grasses to secure the best results; all these facts are plainly set forth, so as to be within the comprehension of any practical and ordinarily intelligent reader, how ever unfamiliar with scientific names. The report on the chemical composition of American Grasses by Mr. Richardson has also been reproduced in an appendix to the present bulletin, as well as a glossary of the terms used in describing grasses. The work will be embellished with 110 plates.

The bulletin comprises a number of valuable comments both from botanists and scientific observers, and from practical farmers giving their opinions and experiences with the different grasses. Altogether it is probably the most complete publication on the grass question yet issued in a practical and convenient form, and should be, as it doubtless will be, found in the library of every intelligent, progressive farmer.

Fugot Sound and Washington Territory.

Colonists going to Tacoma, Olympia, Seattle, Port Townsend, Victoria or any other point in Washington Territory or on the Puget Sound, will find it to their interest to patronize the UNION PACIFIC RAILWAY, "The Overland Route." Free second-class Pullman sleeping cars with all the modern equipments for comfort and luxury run daily from Missouri River points to Portland, Ore., without change, making connection for all the above specified places.

Address the undersigned for pamphlets, rates and general information.

W. H. KNIGHT, General Agent, 191 So. Clark St., Chicago, Ill.

A VALUABLE LOAD.

DEVEREAUX, Mich., July 31st, 1889.

To the Editor of the Michigan Farmer.

In your issue of the 13th ult., "Old Genesee" states that Moses Goodrich's load of wool weighed 2,240 pounds, and sold at Flint for the same number of dollars in greenbacks, and asks, "Does any reader of the FARMER report a more valuable load of farm produce from one farm, and hauled to the market by a pair of medium sized horses on one wagon?" With my own pair of horses, of medium size, on one wagon, at one load, I hauled seven miles to market for Benjamin Peckham, 3,557 pounds of wool that was sold for one dollar per pound, the produce of one farm. Due credit to the team requires the statement that another lot of wool, of between four and five hundred pounds, was taken at the same time, two men riding.

Mr. Fred Thompson, of this place, got an average of 11½ lbs. of washed wool from his flock of Merinos this season, which sold for 28c. per lb., making \$3.22 per fleece, nearly all ewes and raising lambs. If there is a Michigan flock, unwashed, that can make a better showing, would be pleased to see report in FARMER.

S. LAMB.

THE U. S. Department of Agriculture has issued a circular to managers and agents of transportation companies in the United States, calling their attention to the law regulating the transportation of Texas cattle during the period from July 10th to December 1st.

ONE of the best tools now in the market for preparing the soil for seed is the Disc Harrow, manufactured by the Keystone Mfg. Co., of Sterling, Ill. It has been used with success in some sections to put in grain right on the stubble without plowing. But the greatest benefit is derived from it in preparing the soil after plowing. With the seeder attachment, the sowing, pulverizing and covering are all done at one operation and in the best possible manner. If your dealer does not keep them, send to the company for their catalogue.

We have received the annual catalogue of Somerville School, located at the lovely village of St. Clair, on the St. Clair river. The management of the School has passed into the control of Prof. Geo. F. Stone, formerly of Pittsburg, Pa., who comes to this State with an excellent record as an educator; and who is assisted by a competent corps of assistants. The building has been thoroughly renovated and put in order ready for the opening of the school year. The diploma of this School, in the College Preparatory Course, admits its graduates to Michigan University without examination. Care is especially exercised to surround the pupils with a home atmosphere, in addition to affording superior educational advantages, thus doing away with the most objectionable feature of boarding-school life. The attention which has heretofore been paid to physical culture and development at this School has been a very great aid in the making of bright, healthy students, for the education which develops the intellectual faculties at the expense of physical vigor is sadly deficient. We expect to see another prosperous and fruitful year for Somerville School.

We are glad to call the attention of our readers to the advertisement of the Belle City Manufacturing Company in this issue. Their works now occupy eleven acres of ground at Racine Junction, Wis., where they manufacture the Belle City Fodder Cutters, Horse Powers and other implements. This company is composed of three well-known, active and reliable business men, they being David Layton, President; F. K. Bull, Vice-President (he is also Secretary of the J. I. Case T. M. Co.), and L. E. Jones, Secretary and Treasurer.

The Belle City Cutter is too well and favorably known to need any other word from us; but we gladly call special attention to their advertising notice. This company has just been adding largely to their manufacturing plant, and their present capacity is from 15,000 to 18,000 cutters a year, besides horse powers and the balance of their line.

They will send their fully illustrated catalogue and free book on ensilage to any one writing for the same.

The new self-feeding chain attachment, which the Belle City Mfg. Co. are now putting on some of their large size fodder and ensilage cutters, is a great labor-saving invention.

In country districts, where rivers are distant, well water has to be depended upon for stock. Of course it is not positively bad, but it is hard from calcareous deposits. Marsh water is dangerous. To avoid the latter some farmers make one or more troughs by utilizing old barrels thus: Knock the head off and pierce the bottom with holes; then place it three-fourths sunken in the pond, resting on four upright stones so as to allow the water to come up through the holes; place some large gravel in the bottom of the barrel, then some fine sand, and over the latter a layer of broken charcoal; finally, a rather layer of sand. The whole will form an admirable filter as well as purifier, and the animals will soon find the change by only drinking out of the barrel troughs.

Cheap Harvest Excursions.

Will be run by the Wabash Line to points in Kansas, Nebraska, Oklahoma, Dakota, Colorado, and all parts of the West, on August 6th and 20th, September 10th and 24th, and October 8th, 1889. Rate One Fare for Round Trip. For particulars apply at Wabash Ticket Office, 167 Jefferson Ave.

Excursion to Potosky and Traverse City.

Tuesday, Sept. 3rd., over Detroit, Lansing & Northern R. R. Special trains through without change. \$5 for the Round Trip from Detroit; \$4 from Lansing; \$3.50 from Potosky and Saginaw; proportionate rates from other stations. Tickets good for 10 days. If you cannot get particulars, address John R. Wood, Trav. Pass. Agt., D. L. & N. R. R., Detroit, Mich.

Don't throw away your profits. Buy a creamer, get more cream and make better butter. Also save your food in the Leonard Refrigerator Creamer, made by the Refrigerator Co., Grand Rapids, Mich. Send for price list. They pay freight.

PUBLIC OPINION.

Criticism of the Press and People Upon the Agricultural College Troubles.

From Mr. George Whitbeck, of Dowagiac, Cass Co.

"I have known Prof. Johnson for many years, and I know him to be a very capable man in every way, and fully competent to teach those young gentlemen agriculture who are anxious and willing to be taught. It occurs to me that the difficulty is not so much that Prof. Johnson is incompetent to instruct these young gentlemen (we know with all due deference to their superior judgment that he is competent), as it is to the growing hostility among the students to the Agricultural Department itself. These students evidently want to play 'Hamlet with Hamlet' left out. The art—the practical part of agriculture they don't like, and therefore they don't think Prof. Johnson is capable to instruct them. With the present state of things at the College, when will a professor in that department be secured who will meet the demand of these advanced agriculturists? I venture to say that if the professor in that department is to be changed by the Board of Agriculture at the mere *ipse dixit* of the students, the usefulness of that department, as well as of the College, is at an end, and ought to be. The farmers of this State begin to see that this contest was only ostensibly against Prof. Johnson, but is really against his department. I hope the farmers will rally to Prof. Johnson's support, and in so doing will support and maintain the department, which is the chief value of the College to the farmers of Michigan."

Mr. D. J. Harris, of Williamston, Ingham Co., an enterprising farmer who has a habit of saying just what he means, writes:

"As near as we can get at the facts in regard to the trouble at the Agricultural College, we think the attack upon Professor

It has been estimated that we get a complete new outfit of brains every two months. The duration of a nerve's life is about sixty days. Each nerve cell has its own independent functions, subordinate to the higher functions of the whole brain "en masse;" and the latter acts as a sort of boss or overseer to the individual actions and life of each separate cell. Every cell is destroyed and renewed every two months, so we each get six brand new brains per year!

us two fellows that it was an exceedingly handsome night-gown for a lady. The fabric was very fine, and the lace upon the front would have made any woman's mouth water with envy. Our curiosity satiated, the paper was readjusted and the package laid back

10



THE PARIS EXPOSITION.

The Exhibition of Stock—Agricultural Implements and Machinery—Comments on United States Agricultural Statistics, as Shown by the Publications Issued by the Department of Agriculture.

From our Paris Correspondent.

July was a very busy month in the agricultural world at Paris. Cattle shows, congresses, trials of reapers, and dairy exhibits. These gatherings were international, and so exceptional. To all *seigneur* *l'honneur*. The agricultural show was limited to a display of the reproductive cattle races of Europe—after all, for practical purposes, not many. The show was held behind the Palace of Industry, in an inclosed space, between the Avenue des Champs Elysees and the Seine. As always, the accommodation was excellent, nothing flimsy, nothing left to chance. A few up the sheds had glazed roofs, that which ran up the temperature inconveniently. The runs appeared to feel this heat painfully. There were about 1,500 head of black cattle from all Europe—those from Algeria deserve not the honor to be named; 800 sheep, 300 pigs, and perhaps specimens of all the breeds known of turkeys, geese, ducks, poultry, pigeons and rabbits. The catalogue was defective—the result of haste, but this drawback was remedied by full descriptive cards over stalls, pens and cages.

In black cattle, the Durhams, the Charolais, the Limousins, the Angus and the Dutch races carried all before them. Not must the gigantic Normandy breeds be omitted. Pure rather than cross breeds were evidently most in favor. Among Shorthorns, the collection from the farm of the Prince of Wales was very much admired. Respecting sheep, the Merinos and their crossings had not admirers, but idolaters. Some splendid Southdowns were also exhibited. As for pigs, the Yorkshire appeared to be more in favor than the Berkshire; for crosses, the former race is most esteemed in France.

One milch cow merits a special mention; though of the Dutch breed, she came from Malines, in Belgium. Malines is a district whose farmers have the specialty to produce the best dairy stock that can be had in Holland, to keep the Paris dairies supplied, weekly, with fresh animals. It is found that a milch cow, after two seasons in a city byre, becomes unfit for milking purposes. The animal then displays symptoms of delicacy—in a word, becomes consumptive, and the sanitary inspectors condemn such stock instantly. It was M. Michel, of Malines, who carried off the blue ribbons for a Dutch milch cow, purchased as a heifer in Holland. It was a perfect animal. It was awarded the first prize of 400 francs and a gold medal, in the class of milch cows aged four years and above. She carried off the prize—*an objet d'art*, value 500 francs, as the best milch cow in the division. She obtained the prize of honor, value 1,500 francs, as the most perfectly formed animal, and was, for testing the latter, compared alongside a blue-ribbed Durham bull; and, finally, her presence, her beauty, and her excellence, secured the prize of 500 francs for the best lot of milch cows.

The international competition of reapers, binders, simple reapers, combined reapers, mowers and mowers alone, came off at Buisson, near Noidis, in the department of the Seine and Marne, on the estate of the Messrs. Menier, of chocolate notoriety. President Carnot and the Minister of Agriculture were present at the trials, and Madame Menier entertained some 700 guests at a sumptuous banquet. The area of the trial ground was 175 acres, and was admirably suited for the end in view. It was on the same land that had been sown and mowed several weeks previously, by the competing sowing and fertilizing-distributing machines. The crops operated upon were wheat, oats, lucern, and meadow. It is needless to add that the weather was superb.

Only the instruments shown at the Exhibition on the Champ de Mars could compete. The jury had for instructions, not to class the machines according to merit, but to award the prizes following superiority of work and labor done. A few remarks on this subject. Nothing is more difficult at all times than the rigorous estimate of the value of an agricultural machine. Neither the examination of the principles which have served for its construction, nor the divers pieces employed in its making; nor the qualities of the materials employed, nor their action on a measured surface, and within a limited time, sufficiently permit to the most competent judge to pronounce a definite opinion on the absolute value of a machine. The implement the best fabricated does not always come up to expectations on the ground; there are the uncertain factors of the physical properties of the land and its inequalities; condition of the crop, and the state of the weather. Then again there are such modifying elements as differences in the parcels of land allotted to each competitor; the quality of the yoke hired, and the ability of the driver. To this must be added the important character of the durability of the machine. The latter may execute its work irreproachably for several hours, and yet may not render to a farmer better and longer services than a machine classed inferior at the common trial. The wear and tear of the parts of the machine, the number and importance of the repairs and their cost, are very important elements to be weighed. Hence, why the jury judged, not the merits of the machine, but simply its work.

Indeed so important have these modifying causes been considered that the municipality of Paris has placed 3,500 square yards of land, free, at the disposition of the National Agricultural University, to test farming machinery generally. Prof. Ringemann, of Grignon Agricultural College, has been entrusted with the testing of type machines, suited to French farming. He will submit each machine to trials, calculated to bring out its real value; by working under divers circumstances, noting wear and tear, durability, and action over small and vast surfaces; after which it will be officially recommended. In the trials in question, French implement makers have displayed considerable progress; but they are far behind in ability to meet the immediate needs of the farmers. The latter will soon be all syndicated; their syndicates purchase the fertilizers and labor-saving implements. Now is the time for English and American

makers to send their direct representatives, to personally call on these syndicates, and arrange business, of which a great deal is to be transacted. The banks will back the orders of the syndicates.

But we have forgotten our *montons*. At the Noidis competition, each machine had to cut about 53 acres, or 900 square perches. This was effected on an average, in twenty minutes. In the case of the reaper-binders, twelve machines started. All executed their work creditably; the sheaf was turned out as neat and as well bound as if tied by hand and knee. The crowds of spectators were loud in their admiration. America, it is said, expends millions of francs annually on sheep-cutting for blinding. The Wood machine now employs straw; it seizes some stems of straw, 18 inches long, with an artificial hand, twisting them into a band, and placing the latter dexterously under the sheaf. This machine worked for the first time here, and was pronounced to be an automatic wonder. A passing remark for American manufacturers. Do they take into account the greater length of the straw of Continental, as compared with trans-Atlantic cereals?

The trials of the reaper-binders were uniformly satisfactory, and stamped their success. The same cannot be said of the combined reaper-mower, of which three competed. It is rare that machines for effecting two different ends succeed in their aim. Theoretically, a combined machine may be cheaper, but farmers would do well to prefer each machine for its special work.

The mowers of which 27 entered the lists, were not novelties. They all did their work well. Paris, in awarding the apple to the Grasses, could not have experienced greater difficulty than will the jurors for the prizes to be given to the reaper-binders and mowers. The fourth and last day reserved a very agreeable surprise for visitors—a competition of forage-pressing machines, worked by steam, compressed air, and by hand. The trials took place on hay and straw, and the pressed mass was turned out in square and cylindrical blocks. Eight to ten cuts of forage were pressed into the space of a cubic yard; so that an ordinary wagon could be loaded with seven to ten tons of forage. All the machines were not only remarkable by their simplicity, but by their cheapness.

Perhaps the most salient feature in the agricultural section of the United States section, and that dwarfs those of all other nations, is the organization of its agricultural Statistical Department, by means of which the inhabitants of the United States can know, on the first of February every year, the yield of all their soil and farm products, down to December 30 of the previous year. This forms a stately Blue Book of 705 pages, full of chromo-lithographed and other maps, to allow the eye to take in and retain the comparisons between avalanches of both home and foreign figures. Upwards of 70,000 copies of this Annual are struck off, of which 30,000 copies are distributed to the press, public bodies, societies and economists. Further, on the 20th of every month, an abstract of the home and foreign agricultural situation, with collateral information on markets and transports, is published, 20,000 copies being struck off for general distribution.

The Annual is divided into 30 sections, embracing all the information that any intelligent farmer could desire, not only about his profession, but about the natural riches of his country; its out-put for a year, the prices of wages, the progress of railways, the cost of transport to the chief home markets and the purchasing centres of the world.

The United States of America are really equal in area to the Dominion of Canada; that is, eighteen times larger than France. There are of America 2,300 millions of acres, of which 300,000,000 are under cultivation. To gather the statistical information over this vast area of arable land, the Agricultural Bureau at Washington consists of a commissioner and 60 clerks, with 2,331 official and salaried correspondents. The latter have under them three times their number of assistants. In this total are not included the consuls abroad, who are ever appointed for working, and not for ornamental purposes. In addition, when any new subject or question comes to the front, it is given to the most renowned specialists to be handled. Visitors stand aghast at the statistical maps lining the walls of the American section. These hints may be instructive for countries contemplating the establishment of a Minister of Agriculture.

The official Congress just closed attested that French agriculture was in both a sad and serious condition. 87 agriculturists estimated that the revenue suffers thus an annual loss in riches of 1,300,000,000 francs, and that the mean price of land has fallen 30 per cent of the total taxation of the country. On one or two extraneous lines, however, the more important duties are augmented, the less farmers appear to be benefited. Since 1881 American pork has been decreed out of France, wheat is taxed 50 francs the ton, the tax on an acre of 35 francs, it is 24 francs on cows, and four francs on sheep. Wagon loads of slaughtered beef arrive in France from Germany, Belgium, Switzerland and Austria, and still prices with butchers never fall, nor do farmers obtain higher prices either for their cereals or their stock. Farmers must syndicate to sell as well as to buy; the middleman devours their profits.

The Dairy.

CONDUCTED BY T. D. CURTIS.

Value of Our Annual Dairy Products.

As we frequently see misleading figures going the rounds of the press, in regard to the magnitude and value of our dairy industry, we venture to present a few figures showing the approximate amount and value of the products of the dairy in 1889. We give the basis for our estimates, so that each can judge for himself.

The number of cows in the country, according to the census of 1880, was 12,445,120. The increase was 28 per cent, or an average of 3.8 per cent a year, for the previous decade. If we call it 2.5 per cent since, the number of dairy cows in the country is 15,928,493. Add to them 1,000,000 family cows not included in the census and we have 16,928,493. The estimated increase last year was 359,475. At an average of \$30 a head, we have an increase in value of \$11,168,425.

The amount of butter given by the census

was 806,672,071, and of cheese 945,157,850. Calling the butter worth 25 cents and the cheese 10 cents a pound, the value was \$207,651,930. Add 2.5 per cent annual increase, as we have to the cows, and we have for the product of 1889 the value of \$291,834,738.

Only about 40 per cent of the milk yield is estimated to be manufactured. The rest is consumed in its natural state, and is worth \$330,677,105.

The product of the 1,000,000 family cows, at \$36.60, the estimated general average—is probably a good deal more—is worth \$36,600,000.

In the manufacture of 807,672,071 pounds of butter, given by the census, allowing 25 pounds of milk to make a pound of butter, there was 16,193,441,490 pounds of skimmed milk. Add 25 per cent for increase, and we have 20,166,801,775 lbs. for 1889. Science calls this worth 75 cents per 100 pounds, or \$50,417,964 to the average.

We will call the average life of a dairy cow 10 years. Then one-fifth, or 1,092,849 cows are slaughtered annually. At \$25 a head, they are worth \$42,321,225 for cow beef.

Estimate one bull for each 100 cows, and we have 169,284 bulls. The average life of a bull is not over five years. So we slaughter one-fifth of these, or 33,856 bulls this year. At \$10 a head, we have \$1,354,240 in bull beef.

The condensed milk product given by the census was \$1,547,429. We will call it now \$2,000,000.

Ten dollars is estimated by many as the value of the manure of a cow. We will call it seven dollars. Then the manure of 16,928,493 cows is worth \$118,499,451. Think of the value of a cow in keeping up the fertility of a farm!

The manure of 169,284 bulls, at the same rate, is worth \$1,184,988.

To bring these figures all under the eye at once we will tabulate them:

Increase of cows	\$11,664,250
Butter and cheese	207,651,930
Cow manure	118,499,451
Condensed milk	2,000,000
Cow beef	42,321,225
Bull beef	1,354,240
Skimmed milk	50,417,964
Product of family cows	36,600,000
Cow manure	118,499,451
Bull manure	1,184,988
Total value for 1889	\$876,305,076

What other industrial interest can make such a showing? And it is not yet monopolized! It is emphatically the business of the people. About half of our industrial population is engaged in agriculture, and nearly every one on the farm has some interest in the cow. She is the poor man's friend.

Commercial.

DETROIT WHOLESALE MARKET.

DETROIT, August 16, 1889.

Flour—Market quiet and steady at the same prices as quoted a week ago. Quotations on car-load lots are as follows:

Michigan roller process	3 90	64 00
Minnesota patents	4 40	64 00
Minnesota, bakers	3 75	64 00
Minnesota, patents	3 90	62 00
Low grades	2 75	62 00
Low grades	2 75	62 00

WHEAT—Market moving upwards, with the advance in spot much greater than in futures. Receipts contain a great deal of low grade wheat, but less than a week ago. The prospects are for firmness until receipts increase.

Closing quotations to-day were as follows:

No. 1 white, 80c	No. 2 red, 74c
No. 3 red, 74c	No. 4 red, 74c
No. 5 red, 74c	No. 6 red, 74c

CORN—Steady and unchanged. No. 2 quoted at 38c per bushel, for spot, 38c for September delivery. No. 2 yellow quoted at 39c.

OATS—Quoted at 24c for No. 2 white, 23c for light mixed, and 22c for No. 2 mixed.

BARLEY—Quoted at \$1.15 per cental for No. 2 spot.

FED—Bran quoted at \$10.50 per 100; and winter wheat middlings at \$10.50 per 100.

CLOVER SEED—Sales for October were made at \$24.50 per bushel; for prime October, \$25.00; for best offer is 44c per bushel.

BUTTER—No fancy dairy in the market. The range for fair to good dairy is 12c to 13c.

CHOICE 12c higher, and for creamery 14c to 15c.

CHEESE—Quoted at 23c for Michigan full cream. Market weak.

EGGS—The market is steady at 12c to 13c for fresh receipts.

HONEY—Quoted at 12c to 13c for new, and 11c to 12c for old. Market dull.

POULTRY—Lemons, Messina, \$5.00 per box; bananas, yellow, \$5.00 per box; \$5.00 per box; \$5.00 per box.

PEAS, 12c to 13c per bushel; for fancy, 14c to 15c per bushel; for medium, 16c to 17c per bushel; for small, 18c to 19c per bushel.

SALE—Michigan, 30c per bushel, in car lots, or 85c in 10-bushel lots; dairy, \$1.00 to 1.10 per bushel; Ashton quarter sacks, 72c.

HIDES—Green city, 35c per lb.; country, 4c; cured, No. 1, 4c to 5c; No. 2, 3c to 4c; No. 3, 2c to 3c; No. 4, 1c to 2c; No. 5, 1c to 2c; No. 6, 1c to 2c; No. 7, 1c to 2c; No. 8, 1c to 2c; No. 9, 1c to 2c; No. 10, 1c to 2c; No. 11, 1c to 2c; No. 12, 1c to 2c; No. 13, 1c to 2c; No. 14, 1c to 2c; No. 15, 1c to 2c; No. 16, 1c to 2c; No. 17, 1c to 2c; No. 18, 1c to 2c; No. 19, 1c to 2c; No. 20, 1c to 2c; No. 21, 1c to 2c; No. 22, 1c to 2c; No. 23, 1c to 2c; No. 24, 1c to 2c; No. 25, 1c to 2c; No. 26, 1c to 2c; No. 27, 1c to 2c; No. 28, 1c to 2c; No. 29, 1c to 2c; No. 30, 1c to 2c; No. 31, 1c to 2c; No. 32, 1c to 2c; No. 33, 1c to 2c; No. 34, 1c to 2c; No. 35, 1c to 2c; No. 36, 1c to 2c; No. 37, 1c to 2c; No. 38, 1c to 2c; No. 39, 1c to 2c; No. 40, 1c to 2c; No. 41, 1c to 2c; No. 42, 1c to 2c; No. 43, 1c to 2c; No. 44, 1c to 2c; No. 45, 1c to 2c; No. 46, 1c to 2c; No. 47, 1c to 2c; No. 48, 1c to 2c; No. 49, 1c to 2c; No. 50, 1c to 2c; No. 51, 1c to 2c; No. 52, 1c to 2c; No. 53, 1c to 2c; No. 54, 1c to 2c; 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